**Before the**
**Federal Communications Commission**
**Washington, D.C. 20554**

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| In the Matter of | ) | |
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| | ) | ET Docket 98-153 |
| Revision of Part 15 of the Communication's Rules | ) | |
| Regarding Ultra-Wideband Transmission Systems | ) | |

## COMMENTS OF INTERLOGIX, INC.

Interlogix Inc., through its attorneys, hereby submits these comments in the above-captioned Notice of Proposed Rule Making (NPRM). Interlogix generally supports the Commission's proposals to create a new category of unlicensed emitters known as Ultra-Wideband (UWB) devices and to clarify that the existing Part 15 rules are not intended to apply to this technology. One of the suggested clarifications, however, which involves limitations on the "main lobe" of a Part 15 transmitter[1] lacks objectivity and may unfairly penalize companies which have, in good faith, spent years developing products that are in compliance with the current Part 15 rules. Accordingly, Interlogix proposes that the Commission adopt a more objective 20dB bandwidth test for the main lobe emissions from a Part 15 device. This minor change will not impair the proposed scheme for differentiating UWB and other Part 15 emitters yet will allow important Part 15 technologies to be marketed to the American public.

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[1] *See* NPRM, par. 58.

**BACKGROUND**

Interlogix, formerly Sentrol Inc., develops and manufacturers Part 15 motion detectors for commercial and industrial markets. One of Interlogix's products, marketed under the Sentrol brand, is a Range-Controlled Radar (RCR) device that utilizes very high pulse rate (i.e., short pulse width) emissions derived from an oscillator circuit tuned to the 5.8 GHz ISM band. These devices fall squarely within the Part 15 scheme for unlicensed transmitters and, in fact, have previously been certified by the Commission under Section 15.249.[2] Nonetheless, because they use large bandwidths and employ very short pulsed emissions, they raise UWB-related concerns.

It is important, therefore, that the Commission understand how Interlogix's technology differs from that of a "conventional" UWB transmitter. First, most UWB devices do not employ an oscillator to generate their transmissions but use a differentiator to create voltage or current spikes. These spikes are then treated like half-cycle frequency oscillations; however, because such emitters differentiate only a single edge of a rising voltage, they cannot be turned on and off with varying pulse widths or continuously, as can a device like Interlogix's which uses oscillator-tuned circuits.

Second, Interlogix's device requires the use of a receiver that is tuned to the transmitting frequency of the device. In fact, the RCR is a homodyne system with the transmitter and receiver sharing a single oscillator such that, if receiver tuning drifts from the transmit frequency, device performance will suffer. In contrast, UWB receivers are typically not tuned to any specific frequency so that drifting is not a concern.

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[2] *See* e.g., FCC ID: CCGAA2

Third, Interlogix's device does not rely on any emissions outside the main lobe for its intended operation. This means that it complies fully with Section 15.205 restricted band prohibitions against fundamental emissions.[3] By design, Interlogix filters out as much non-fundamental spectrum as possible to optimize the device's signal to noise ratio. While these spurious emissions are of no value to the RCR device, they are often critical to the performance of a UWB system.

Finally, Interlogix has demonstrated repeatedly that its devices can easily meet the Commission's peak emission levels even with pulse desensitization factors applied, something that is very difficult for most UWB emitters due to their extremely narrow pulse widths (on the order of pico seconds). Accordingly, it should be quite clear to the Commission that Interlogix's RCR technology is not ultra-wideband in nature, and that any changes made to the Part 15 rules to restrict their applicability to UWB devices must not preclude this technology from being utilized for Part 15 operations.

**PROPOSED PART 15 AMENDMENTS**

In paragraph 58 in the NPRM, the Commission notes that several UWB proponents had questioned whether such devices could be allowed to operate under the higher power levels permitted by the Part 15 rules. Because the proposed rules set forth specific regulations dealing with frequency of operation and emission levels for UWB that are distinct from other types of Part 15 emitters, the Commission reasons that the

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[3] Interlogix has shown, in device submissions to the Commission, that out-of-band emissions can be filtered and the device operates as intended, thus meeting the definition of "spurious emission" per Section 2.1 (a reduction in such emissions does not "[affect] the corresponding transmission of information").

latter rules should not also apply to UWB devices. And to ensure that Part 15 devices will not hybridized in this fashion, the NPRM proposes to require all non-UWB Part 15 radiators to demonstrate that their "the main lobe or necessary bandwidth, whichever is less, is contained within the frequency bands designated in those rule sections under which the equipment is operated."[4]

This proposed rule raises several concerns. First, it is not clear how one is to compute the "necessary bandwidth" for a Part 15 radiator under the current rules. Interlogix notes that Section 2.202(g) provides a table for calculating the necessary bandwidths for various types of transmitters but fails to provide precise information on certain factors necessary to such calculations.[5] On the understanding that the main lobe of an unmodulated pulsed emitter like the RCR will always be equal to or less than the necessary bandwidth,[6] a second concern is raised, that being, how one is to go about accurately measuring the "main lobe" of any given emission. Interlogix submits that a more precise technical standard is necessary to determine compliance with the proposed rule and such standard should be couched in terms of the overall spectral energy of a device's fundamental emission.

Interlogix recommends that instead of "main lobe," the Commission focus on the fundamental spectral energy and adopt a 20dB bandwidth requirement as a means of

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[4] *See* NPRM ¶ 58.

[5] The necessary bandwidth of an unmodulated pulsed emitter is determined by a formula which includes a variable (k) that is undefined in the rules.

[6] John Reed of OET advised Interlogix's counsel that this would be the case for an unmodulated pulsed emitter like the RCR.

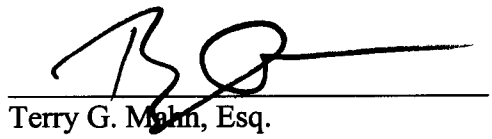
ascertaining whether the fundamental emission is contained wholly within the designated Part 15 band. A 20dB bandwidth standard is precise and because it is often used as a conventional method for determining the interference potential of a transmitter it can easily be employed in the context of Part 15. Interlogix submits that such measurement standard, coupled with the application of pulse desensitivity correction factors to the transmitter fundamental, provides ample assurance to the Commission that the Part 15 rules will not be hybridized by UWB emitters.

## CONCLUSION

Based on the foregoing, Interlogix requests that the Commission adopt its proposal for an objective 20dB bandwidth test in place of the imprecise "main lobe" requirement for determining whether a device is in compliance with the non-UWB provisions of the Part 15 rules.

Respectfully submitted,

Interlogix Inc.



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